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Application No. 10/619,987
Amendment dated May 6, 2009
Reply to Final Office Action of November 17, 2008

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A combination of a surgical ligation clip for ligating a vessel and a ligation clip applier for applying the ligation clip to the vessel, the combination comprising:

said ligation clip comprising a continuous length of material, said material having an elongated member having a proximal end, an opposite distal end, and a length therebetween, said material having an elongated arm having a proximal end, an opposite distal end, and a length therebetween, said arm having a vessel contacting surface oriented toward said member, said member having a surface oriented toward said vessel contacting surface of said arm, said arm and said member being biased toward one another in an open position, said material having a connector having a maximum length, and a maximum height perpendicular to the maximum length of said connector, said connector connecting said member and said arm, said clip having a longitudinal axis, a proximal end, an opposite distal end, and a length therebetween, said clip having a width proximate said distal end of said clip that is greater than a width proximate said proximal end of said clip, said surface of said member along at least a portion of the length of said member having a width corresponding to the width proximate said distal end of said clip, wherein one of said arm and said member includes a portion at said distal end thereof generally oriented along the longitudinal axis of said clip, and the maximum length of said connector is oriented along the longitudinal axis of said clip, the maximum length of said connector approximating the maximum height of said connector; and

said clip applier comprising a proximal end, an opposite distal end, a length therebetween, and an opener pivotably attached to said clip applier

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proximate said distal end, said opener being actuatable from a first position to a second position, and said opener being adapted to contact said arm to move said clip to the open position upon actuation thereof toward the second position.

2. (currently amended) The clip of the combination of claim 1, wherein said surface of at least one of said arm and said member is treated to enhance gripping of the vessel.
3. (currently amended) The clip of the combination of claim 2, wherein said surface includes at least one of ridges, notches, burrs, and etching.
4. (currently amended) The clip of the combination of claim 1, wherein said connector includes a coil biasing said arm and said member toward one another in the open position.
5. (currently amended) The clip of the combination of claim 1, wherein said continuous length of material of at least one of said member and arm has a non-circular cross section along at least a portion of its length.

Claim 6 (cancelled).

7. (currently amended) A combination of a surgical ligation clip for ligating a fluid carrying structure and a ligation clip applier for applying the ligation clip to the fluid carrying structure, -said clip the combination comprising:

said ligation clip comprising:

a longitudinal axis, a distal end, and a proximal end opposite said distal end;

a clamping arm oriented generally along the longitudinal axis of said clip, said clamping arm including a portion at said distal end of said clip generally oriented along the longitudinal axis;

a support member oriented generally along the longitudinal axis of said clip, said support member including a portion at said distal end of said clip generally oriented along the longitudinal axis; and

a connector at said proximal end of said clip having a maximum length oriented along the longitudinal axis, and a maximum height perpendicular to the

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maximum length of said connector, the maximum length of said connector approximating the maximum height of said connector, said connector joining said support member and said clamping arm, said clip being formed of a continuous length of material having a first free end terminating at said connector and a second free end terminating proximate said distal end of said clip; and
said clip applier comprising a proximal end, an opposite distal end, a
length therebetween, and an opener pivotably attached to said clip applier
proximate said distal end, said opener being actuatable from a first position to a
second position, and said opener being adapted to contact said clamping arm to
move said clip to an open position upon actuation thereof toward the second
position.

8. (currently amended) The clip of the combination of claim 7, wherein said connector is adapted to bias said support member and said clamping arm toward one another in a closed position.
9. (currently amended) The clip of the combination of claim 7, wherein said connector includes a coil.
10. (currently amended) The clip of the combination of claim 7, wherein a surface of at least one of said clamping arm and said support member is treated to enhance gripping of the fluid carrying structure.
11. (currently amended) The clip of the combination of claim 10, wherein said surface includes at least one of ridges, notches, burrs, and etching.
12. (currently amended) The clip of the combination of claim 7, wherein said continuous length of material of at least one of said support member and clamping arm has a non-circular cross section along at least a portion of its length.

Claims 13-38 (cancelled).

39. (currently amended) A combination of a surgical ligation clip for ligating a fluid carrying structure and a ligation clip applier for applying the ligation clip to the fluid carrying structure, -said clip the combination comprising:

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said ligation clip comprising:

a longitudinal axis, a distal end, and a proximal end opposite said distal end;

a support member having a maximum length oriented generally along the longitudinal axis of said clip;

a clamping arm having a maximum length oriented generally along the longitudinal axis of said clip, said clamping arm being biased toward said support member; and

a connector having a maximum length oriented along the longitudinal axis, and a maximum height perpendicular to the maximum length of said connector, the maximum length of said connector approximating the maximum height of said connector, and being less than half of the maximum lengths of one of said support member and said clamping arm, said clip being formed of a continuous length of material having a first free end terminating proximate said proximal end of said clip and a second free end terminating proximate said distal end of said clip; and

said clip applier comprising a proximal end, an opposite distal end, a length therebetween, and an opener pivotably attached to said clip applier proximate said distal end, said opener being actuatable from a first position to a second position, and said opener being adapted to contact said clamping arm to move said clip to an open position upon actuation thereof toward the second position.

40. (currently amended) The clip of the combination of claim 39, wherein said clip includes a first bend section between said support member and said clamping arm.
41. (currently amended) The clip of the combination of claim 41, wherein said support member includes a second bend section.
42. (currently amended) The clip of the combination of claim 1, wherein the other of said arm and said member includes a portion at said distal end thereof generally

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oriented along the longitudinal axis.

43. (currently amended) The clip of the combination of claim 1, wherein the length of said connector is less than half of the lengths of said arm and said member.
44. (currently amended) The clip of the combination of claim 1, wherein said connector biases said distal end of said arm away from said distal end of said member while said clip is in a closed and unengaged position.
45. (currently amended) A combination of a surgical ligation clip for ligating a fluid carrying structure and a ligation clip applier for applying the ligation clip to the fluid carrying structure, the combination comprising:

said ligation clip comprising:
a longitudinal axis, a distal end, and a proximal end opposite said distal end;
a clamping arm having a proximal end, a distal end opposite said proximal end, and a length therebetween, a portion of the length of said clamping arm at said distal end being generally parallel to the longitudinal axis;
a support member having a proximal end, a distal end opposite said proximal end, and a length therebetween, a portion of the length of said support member at said distal end being generally parallel to the longitudinal axis; and
a connector at said proximal end of said clip for connecting said clamping arm and said support member, said connector having a maximum length oriented along the longitudinal axis, and a maximum height perpendicular to the maximum length of said connector, the maximum length of said connector approximating the maximum height of said connector, and being less than half of the lengths of one of said clamping arm and said support member, said connector spacing said clamping arm and said support member apart from one another along a majority of the lengths thereof, and allowing for movement of said clamping arm and said support member relative to one another; and
said ligation clip applier comprising a proximal end, an opposite distal end, a length therebetween, and an opener pivotably attached to said clip applier

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proximate said distal end, said opener being actuatable from a first position to a second position, and said opener being adapted to contact said clamping arm to move said clip to an open position upon actuation thereof toward the second position.

46. (currently amended) A combination of a surgical ligation clip for ligating a fluid carrying structure and a ligation clip applier for applying the ligation clip to the fluid carrying structure, the combination comprising:

said ligation clip comprising:

a longitudinal axis, a distal end, and a proximal end opposite said distal end;

a clamping arm having a proximal end, a distal end opposite said proximal end, and a length therebetween, a portion of the length of said clamping arm at said distal end being generally parallel to the longitudinal axis;

a support member having a proximal end, a distal end opposite said proximal end, and a length therebetween, a portion of the length of said support member at said distal end being generally parallel to the longitudinal axis; and

a connector at said proximal end of said clip for connecting said clamping arm and said support member, said connector having a maximum length oriented along the longitudinal axis, and a maximum height perpendicular to the maximum length of said connector, the maximum length of said connector approximating the maximum height of said connector, said clamping arm and said support member spaced apart from one another along a majority of the lengths thereof, said connector allowing for movement of said clamping arm and said support member relative to one another; and

said ligation clip applier comprising a proximal end, an opposite distal end, a length therebetween, and an opener pivotably attached to said clip applier proximate said distal end, said opener being actuatable from a first position to a second position, and said opener being adapted to contact said clamping arm to

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move said clip to an open position upon actuation thereof toward the second position.